IBM – Cloud Computing Reference Architecture v2.0

Service Orientated Architecture (SOA) as it relates to the "Cloud"

Three Service Models:

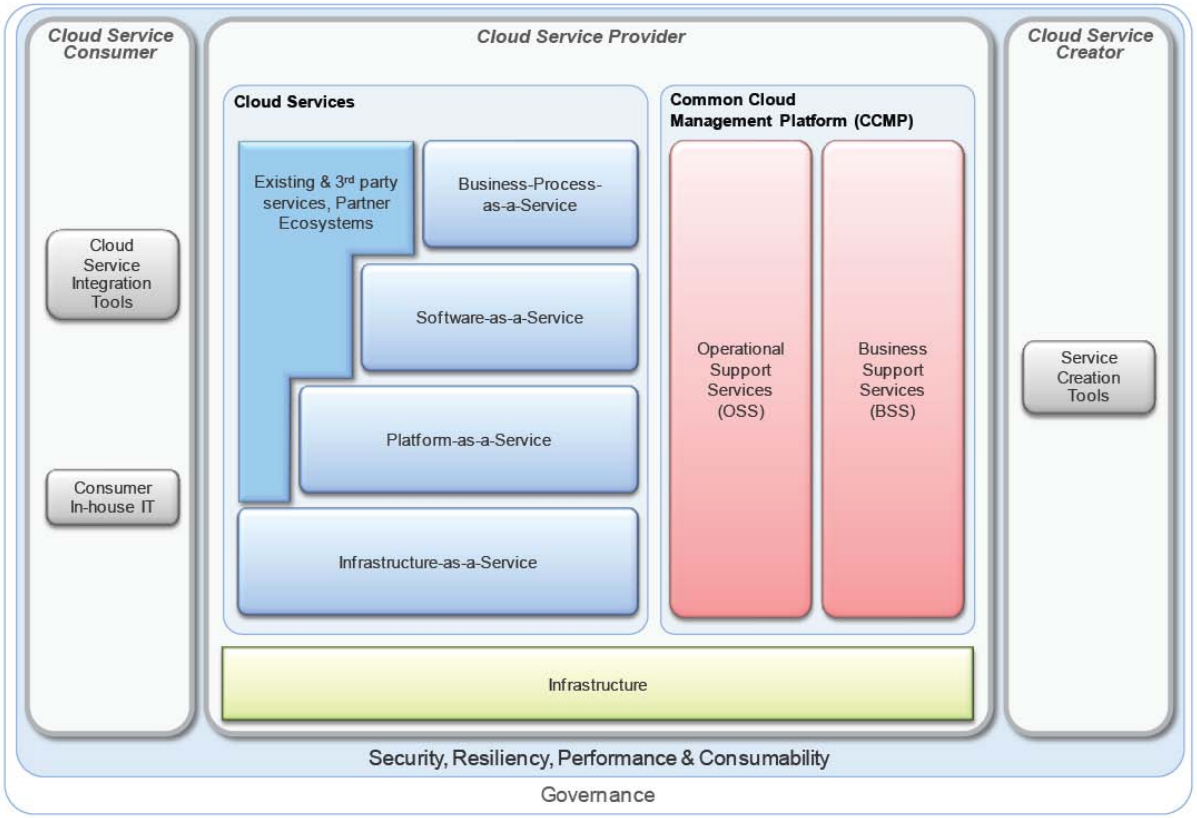
- Cloud Infrastructure as a Service
- Cloud Platform as a Service
- Cloud Software as a Service

Four Deployment Models:

- Private
- Community
- Public
- Hybrid

Five essential Characteristics:

- On-demand self service
- Broad network access
- Resource pooling
- Rapid elasticity
- Measured service



2.3.2.1.1.1. Infrastructure-as-a-Service

"*The capability provided to the consumer is to rent processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications. The consumer does not manage or control the underlying cloud infrastructure but has control over operating systems, storage, deployed applications, and possibly select networking components (e.g.,*

firewalls, load balancers)." [7]

2.3.2.1.1.2. Platform-as-a-Service

"*The capability provided to the consumer is to deploy onto the cloud infrastructure consumer-created applications using programming languages and tools supported by the provider (e.g., java, python, .Net). The consumer does not manage or control the underlying cloud infrastructure, network, servers, operating systems, or storage, but the consumer has control over the deployed applications and possibly application hosting environment configurations.*" [7]

2.3.2.1.1.3. Software-as-a-Service

"*The capability provided to the consumer is to use the provider's applications running on a cloud infrastructure and accessible from various client devices through a thin client interface such as a Web browser (e.g., web-based email). The consumer does not manage or control the underlying cloud infrastructure, network, servers, operating systems, storage, or even individual application capabilities, with the possible exception of limited user-specific application configuration settings.*" [7]

Software-as-a-Service is also referred to as Applications-as-a-Service since SaaS is essentially about providing applications as a service (vs. software in general). This also includes content services (e.g. video-on-demand) and higher value network services (e.g. VoIP) as typically encountered in communication service provider scenarios.

2.3.2.1.1.4. Business-Process-as-a-Service

"*Business process services are any business process (horizontal or vertical) delivered through the Cloud service model (Multi-tenant, self-service provisioning, elastic scaling and usage metering or pricing) via the Internet with access via Web-centric interfaces and exploiting Web-oriented cloud architecture. The BPaaS provider is responsible for the related business function(s).*" [Source: IBM MI and IPR definition bridge between Gartner and IDC, Aug 19, 2010]

Examples are processes for employee benefit management, business travel, procurement or also ITcentric processes such as software testing (where the entire testing process including testing staff is provided as an externally hosted cloud service).